IR satellite data & IR-derived precipitation estimates (John.Janowiak@noaa.gov)

A- 3-hourly & daily global (60N-60S) precipitation estimates from IR data. Intermediate (and archived) products include: Globally merged histograms of IR brightness temperatures from GOES (east & west), Meteosat (5 & 7) and GMS (currently GOES-9) that are collected individually by the various satellite operators (3-hourly) ; histograms of OLR data (converted from flux to brightness temperature) from all available NOAA polar orbiting satellites; pixel-resolution IR data from all geostationary satellites each ½ hour.

B- Satellite IR & OLR data

C- Global (60N-60S)

D- For the IR-derived precip. estimates & IR histogram data:
   a. pentad mean, 2.5 x 2.5 lat/lon
   b. 3-hourly, 1 x 1 lat/lon
   c. ~ 4 km, 1/hourly (IR full resolution data)

E- a. 1986-present
   b. 1997- present
   c. 1998 – present

F- a. assembled from 3-hourly data each pentad
   b. twice-daily
   c. every ½ hour

G- IR-derived precipitation estimates available from CPC web site (http://www.cpc.ncep.noaa.gov/products/global_precip/html/web.html)
   IR histogram data available by request from CPC

H-Data are used to make final GPCP estimates for GEWEX

2*) Scientific Stewardship Activities Required for Continued Production of the Climate-Quality Data Set*

A- Careful comparisons of internal-consistency of geo-IR data revealed a viewing angle dependence in the data which has been quantified, published and used routinely to mitigate that dependence. Data have been compared with independent & polar-orbiter data periodically. The ISCCP intercalibration coefficients are used (when available) to account for differences in the spectral response of the various sensors since the peak frequencies vary from 10.7 to 11.5 microns. As a backup, research has been conducted that has resulted in a separate scheme to intercalibrate the IR data by comparing IR BT's at collocated areas in satellite overlap regions (after the viewing angle correction has

been applied) but this requires full-res IR imagery to get stable statistics & thus can only be used for 1998-present which is the period for which global IR at full-res is available.

B- ISCCP intercalibration coefficients are used to help reduce bias in the IR data. Precipitation validation activities by the GPCP Surface Reference Data Center provides feedback for the resulting IR-derived precipitation estimates.

C- we are presently reprocessing the full-res global IR archive to make the entire record homogeneous; to date the reprocessing has covered the period February 2000 through November 2001 and will continue until data through November 2002 have been reprocessed.

D- Yelena Yarosh at CPC inspects all products visually and appropriate action is taken after a consensus decision is made. This may involve requesting the satellite operators to check their products and resend, or create the spatially averaged GPCP IR products from the full-res IR data set.

E- John.janowiak@noaa.gov

3) Transition of ARC Project to Operational Center

Processing and archive only at NOAA Center; PI performing Scientific Data Stewardship oversight as needed.